

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number
WO 2005/064122 A1

(51) International Patent Classification⁷: **F01K 27/00**,
F17D 1/04, F17C 7/00, F02C 1/02, C01B 3/02, C25B
1/00, H02K 7/00

(74) Agent: **COOPER, Michael, D.**; Barrigar Intellectual
Property Law, Suite 290, 1675 Douglas Street, Victoria,
British Columbia V8W 2G5 (CA).

(21) International Application Number:
PCT/CA2004/002183

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(22) International Filing Date:
22 December 2004 (22.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/533,357 30 December 2003 (30.12.2003) US

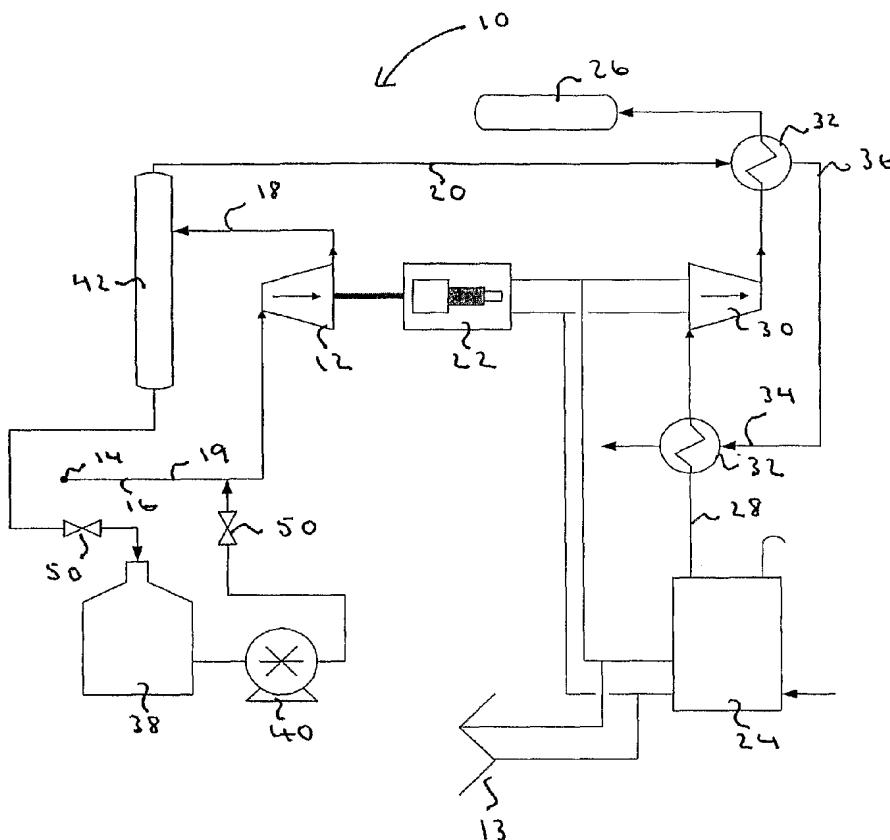
(71) Applicants and

(72) Inventors: **MCDONALD, Duncan** [CA/CA]; 2027
Saltair Place, Victoria, British Columbia V8N 4S4 (CA).
BAILEY, Richard, A. [CA/CA]; 8831 Carmanah Terrace,
Sidney, British Columbia V8L 5E9 (CA).

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

[Continued on next page]

(54) Title: APPARATUS AND METHODS FOR GAS PRODUCTION DURING PRESSURE LETDOWN IN PIPELINES



(57) Abstract: Apparatus, methods and an installation are provided for reducing pressure in a carrier line, such as a natural gas pipeline, and capturing the resultant waste energy. The apparatus is comprised of a flow converter for gaseous communication with a carrier line and an electricity generator mechanically linked to the flow converter for transforming the excess energy resulting from the pressure drop into electrical energy, such that in use, the energy released from the pressure drop can be captured and utilized for the production of gases such as hydrogen.

WO 2005/064122 A1



SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*